

**CLAIMS**

1. A surgical clip for occluding a body passageway, the clip comprising:
  - a base portion,
  - 5 at least one resilient limb extending from the base portion and having a free end disposed forward of the base portion, and
  - a reaction portion mounted to the base portion, the reaction portion defining a generally forwardly directed reaction surface disposed between the base portion and the free end of the limb or limbs,
- 10 the limb or limbs being movable under a resilient restoring force from a first, open, condition, in which a gap is provided between the limb or limbs and the reaction portion for receiving the body passageway into the clip, to a second, closed, condition, in which the limb or limbs cooperate with the reaction portion to grip the body passageway to occlude the same.
- 15 2. A surgical clip according to claim 1, wherein the clip has a pair of such limbs each extending in generally opposite lateral directions from a point of connection to the base portion of the clip and configured along its length so that the free end of the limb is disposed forward of the base portion of the clip.
- 20 3. A surgical clip according to claim 2, wherein the base and reaction portions are disposed generally centrally between the pair of limbs.
- 25 4. A surgical clip according to any one of the preceding claims, wherein the reaction surface is substantially fixed in relation to the movement of the limb or limbs.
- 30 5. A surgical clip according to any one of the preceding claims, wherein the reaction surface is elongate.
6. A surgical clip according to any one of the preceding claims, wherein the reaction surface and the limb or limbs are suitably dimensioned and arranged so that in the closed condition of the clip substantially the entire transverse width of the occluded body passageway is in contact with the reaction surface.

7. A surgical clip according to any one of the preceding claims, wherein at least two parts of the clip are generally planar and the respective planes are offset against one another.

5

8. A surgical clip according to any one of the preceding claims, wherein at least the base portion and the reaction portion of the clip are generally planar and the plane of the base portion is at a small angle to the plane of the reaction portion.

10

9. A surgical clip according to any one of the preceding claims, wherein the base portion, the reaction portion and the or each limb are generally planar and the plane of the or each limb is at a small angle to the plane or planes of the base portion and the reaction portion.

15

10. A surgical clip according to any one of the preceding claims, wherein the clip has a pair of limbs, one limb lies slightly to one side of the plane or planes of the base portion and the reaction portions, and the other limb lies slightly to the opposite side of those planes, whereby the free ends of the limbs overlie opposite sides of the reaction portion in the closed condition of the clip.

20

11. A surgical clip according to any one of the preceding claims, wherein the reaction surface is shaped in a manner generally complementary to the shape of those parts of the or each limb which cooperate with the reaction surface in the closed condition of the clip.

25

12. A surgical clip according to any one of the preceding claims, wherein at least one of the opposed cooperating parts of the reaction surface and the or each limb is provided with surface projections which serve in use to enhance grip of the clip on the body passageway.

30

13. A surgical clip according to claim 12, wherein the surface projections are rounded teeth, pointed teeth, nipping heads, or any combination thereof.

14. A surgical clip according to any one of the preceding claims, wherein the or each limb is connected to the base portion of the clip via a curved portion of the limb defining a connection point to the base portion behind the reaction portion of the clip.

5

15. A surgical clip according to claim 14, wherein a further curve is provided in the limb in the opposite direction to the said curved portion, whereby the free end of the limb is disposed forward of the base portion of the clip.

10 16. A surgical clip according to claim 14 or claim 15, wherein an elongate portion is provided in the or each limb between the curves, whereby during closure a leverage effect is produced on the part of the limb which is in contact with the body passageway.

15 17. A surgical clip according to any one of the preceding claims, wherein the base portion of the clip is in the form of an open loop or generally U shaped member having a closed end directed away from the limbs and an open end at which the limbs and the reaction portion are connected to the base portion.

20 18. A surgical clip according to claim 17, wherein the reaction portion of the clip is provided in two halves, each of which is connected to one side of the open end of the base portion via a neck region and which are complementarily juxtaposed to define the reaction surface of the clip.

25 19. A surgical clip according to any one of the preceding claims, wherein the base portion of the clip is provided with a weak region or point at which the base portion may be cut to remove the clip from the body passageway.

30 20. A surgical clip according to any one of the preceding claims, wherein the clip is integrally formed of a superelastic or pseudoelastic shape-memory material.

21. A surgical clip according to any one of the preceding claims, wherein the clip is integrally formed of sheet nitinol metal (nickel-titanium alloy).